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ZEE, EDWARD				
ART UNIT		PAPER NUMBER		
2435				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/528,938

Applicant(s)

DU ET AL.

Examiner

EDWARD ZEE

Art Unit

2435

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 and 34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 October 2010 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-940)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This is in response to the correspondence filed on 01/06/11. Claims 1, 16 and 20 have been amended; Claims 1-32 and 34 are pending and have been considered below.

Drawings

2. The drawings were received on **10/05/10**. These drawings are acceptable for examination.

3. The drawings are objected to because **figure 2** contains step 122 which should be amended to recite "**map the 3D tracks onto a 2D plane**" (please see page 8, line 20 of the specification filed on 10/05/10). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01. Please see at least **page 8** of the specification filed on **10/05/10**.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. **Claims 1-32 and 34** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. **Claims 1, 16 and 20** recite that, "*said projection plane is where a distance square of each sampling point, of the sampling rate, is minimal*", which renders the claims indefinite as it is unclear what distance is squared to begin with; and with respect to what starting point and ending point this distance is measured.

Additionally, Examiner respectfully notes that it is unclear how the distance square even relates to the projection plane at all. The portions of the specification cited by Applicants to support this newly introduced limitation (please see page 10 of the remarks filed on 01/06/11) appear to recite a complex mathematical formula for determining exactly how the projection plane is determined by using a sample set of points.

However, while the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Thus, absent this formula and/or any additionally written guidance, Examiner respectfully submits that it is indefinite as to how one would arrive at a 2D projection plane by simply knowing it is "a distance square of each sampling point".

8. The term "minimal" in **Claims 1, 16 and 20** is a relative term which renders the claim indefinite. The term "minimal" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claims 1-32 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stork et al. (6,212,296) in view of Okahara et al. (2001/0004254) and further in view of Lapstun et al. (6,737,591).**

Claims 1, 16 and 20: Stork et al. discloses a handwriting recognition system, comprising:

a. an input device including a three-dimensional (3D) motion detection sensor that is configured to generate 3D motion data in response to a 3D motion [column 2, lines 39-49 | column 3, lines 25-30]; and

b. a recognition device, in communication with the input device, that is configured to receive the 3D motion data and derive corresponding two-dimensional (2D) images for handwriting recognition, based on the 3D motion data [column 4, lines 33-45].

Nonetheless, while Stork et al. further discloses determining and/or adjusting the sampling rate of the 3D motion (time steps are chosen according to the resolution desired) [column 5, lines 45-50], Stork et al. does not explicitly disclose wherein a sampling rate of the 3D motion is determined and/or adjusted using a speed of the 3D motion.

However, Okahara et al. discloses a similar invention and further discloses wherein a sampling rate of the motion is determined and/or adjusted using a speed of the motion (sampling rate maybe be changed in a no step-by-step manner in proportion to the movement speed of the pointer) [page 9, paragraph 0149].

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify the disclosure of Stork et al. with the additional features of Okahara et al., in order to allow for a smoother operation of the pointer at various speeds, as suggested by Okahara et al. [page 9, paragraph 0148].

Nonetheless, neither Stork et al. nor Okahara et al. explicitly disclose wherein a proper 2D projection plane is derived for each word or character and said proper 2D projection plane is where a distance square of each sampling point, of the sampling rate, is minimal.

However, Lapstun et al. discloses a similar handwriting recognition invention [column 3, lines 5-15] and further discloses wherein a proper 2D projection plane is derived for each word or character and said proper 2D projection plane is where a distance square of each sampling point, of the sampling rate, is minimal [column 56, lines 45-55].

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify the disclosure of Stork et al. and Okahara et al. with the additional features of Lapstun et al., in order to properly account for the perspective distortion due to the pen being tilted, as suggested by Lapstun et al. [column 55, lines 15-30 & 60-65].

Claims 2, 17 and 21: Stork et al., Okahara et al. and Lapstun et al. disclose the system of claims 1, 16 and 20, and Stork et al. further discloses wherein the recognition device includes means for performing 2D handwriting recognition based on the 2D images [column 8, lines 15-25].

Claims 3, 18 and 22: Stork et al., Okahara et al. and Lapstun et al. disclose the system of claims 1, 16 and 20, and Stork et al. further discloses wherein the recognition device includes:

- a. means for calculating corresponding 3D coordinates based on the 3D motion data [column 5, lines 1-20];
- b. means for constructing corresponding 3D tracks based the 3D coordinates [column 5, lines 1-20]; and
- c. means for deriving the corresponding 2D images from the 3D tracks [column 4, lines 33-45].

Claims 4, 19 and 23: Stork et al., Okahara et al. and Lapstun et al. disclose the system of claim 3, 18 and 22, and Stork et al. further discloses wherein the deriving means includes means for

mapping the 3D tracks onto a 2D plane for deriving the 2D images for handwriting recognition [column 4, lines 33-45].

Claims 5 and 24: Stork et al., Okahara et al., and Lapstun et al. disclose the system of claims 3 and 22, and Stork et al. further discloses wherein the recognition device includes means for performing 2D handwriting recognition based on the 2D images [column 9, lines 39-54].

Claims 6 and 25: Stork et al., Okahara et al., and Lapstun et al. disclose the system of claims 4 and 23, and Stork et al. further discloses wherein the calculating means calculates the corresponding 3D coordinates of each sampling point based on the 3D motion data and a selected sampling rate [column 7, lines 5-12].

Claims 7 and 26: Stork et al., Okahara et al., and Lapstun et al. disclose the system of claims 6 and 25, and Stork et al. further discloses wherein the recognition device further includes means for dynamically adjusting the sampling rate based on the speed of the motion [column 5, lines 45-50].

Claims 8 and 27: Stork et al., Okahara et al., and Lapstun et al. disclose the system of claims 6 and 25, and Stork et al. further discloses wherein the deriving means includes means for deriving the 2D plane as a plane to which the sum of the distance square of each sampling point is minimal [column 7, lines 12-25].

Claims 9 and 28: Stork et al., Okahara et al., and Lapstun et al. disclose the system of claims 3 and 22, and Stork et al. further discloses wherein the input device further includes a control circuit, responsive a user's command, that is configured to generate a control signal for transmitting to the recognition device to indicate completion of writing a word or a character [column 3, lines 22-30].

Claims 10 and 29: Stork et al., Okahara et al. and Lapstun et al. disclose the system of claims 3 and 22, and Stork et al. further discloses wherein the motion detection sensor measures acceleration of the 3D motion in X, Y and Z axial directions to generate the 3D motion data [column 3, lines 11-21].

Claims 11 and 30: Stork et al., Okahara et al. and Lapstun et al. disclose the system of claims 5 and 24, and Stork et al. further discloses comprising an output device for displaying final results of the handwriting recognition [column 4, lines 18-24].

Claim 12: Stork et al., Okahara et al. and Lapstun et al. disclose the system of claim 1, and Stork et al. further discloses wherein the input device further includes a control circuit, responsive a user's command, that is configured to generate a control signal for transmitting to the recognition device to indicate completion of writing a word or a character [column 3, lines 22-30].

Claims 13 and 32: Stork et al., Okahara et al. and Lapstun et al. disclose the system of claims 1 and 20, and Stork et al. further discloses wherein the motion detection sensor measures acceleration of the 3D motion in X, Y and Z axial directions to generate the 3D motion data [column 3, lines 11-21].

Claims 14 and 31: Stork et al., Okahara et al. and Lapstun et al. disclose the system of claims 1 and 20, and Stork et al. further discloses wherein the input device wirelessly transmits the 3D motion data to the recognition device [column 2, lines 31-39].

Claims 15 and 34: Stork et al., Okahara et al. and Lapstun et al. disclose the system of claims 1 and 20, and Stork et al. further discloses wherein the recognition device includes means for performing 2D handwriting recognition based on the 2D images [column 8, lines 15-25].

Response to Arguments

11. Applicant's arguments with respect to claims 1, 16 and 20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **EDWARD ZEE** whose telephone number is (571)270-1686. The examiner can normally be reached on Monday through Thursday 9:00AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Y. Vu can be reached on (571) 272-3859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. Z./
Examiner, Art Unit 2435

/HOSUK SONG/
Primary Examiner, Art Unit 2435